Investigation of spin-lattice...

$\Delta V(t)$ is the variable epr. signal amplitude, $\Delta V(\infty)$ the equilibrium value. This relation corresponds to the relaxation formula for a two-level spin system: $\exp(-t/T_1) = 1 - n(t)/n(\infty)$, where $n = N_1 - N_2$ is the population excess of the lower level and $n(\infty)$ is the equilibrium value, reached when the signal amplitude passes through zero. For the first specimen (with the paramagnetic defect concentration 10^{18} cm^{-3}) $T_1 \sim T^{-1}$ in the range $1.7^\circ K < T < 3^\circ K$ and $T_1 \sim T^{-4}$ in the range $3^\circ K < T < 4.2^\circ K$. For the second specimen (10^{19} defects/cm^{-3}) $T_1 \sim T^{-1}$ only between 1.7 and $2^\circ K$ and for $2^\circ K < T < 4.2^\circ K$, $T_1 \sim T^{-4}$. It may therefore be concluded that T_1 depends strongly on the paramagnetic defect concentration at $4.2^\circ K$ and weakly at $1.7^\circ K$. If this concentration is higher a still stronger dependence could be possible. There are 3 figures.

ASSOCIATION: Institut radiofiziki i elektroniki AN USSR Khar'kov (Institute of Radiophysics and Electronics AS UkrSSR, Khar'kov)

SUBMITTED: October 19, 1962

L 18494-63 EWT(1)/BDS AFFTC/ASD Pm-4

ACCESSION NR: AP3006460 S/0109/63/008/009/1573/1576

56
55

AUTHOR: Shamfarov, Ya. L.

TITLE: Method of reducing the "dead time" of two-level paramagnetic molecular amplifiers 25

SOURCE: Radiotekhnika i elektronika, v. 8, no. 9, 1963, 1573-1576

TOPIC TAGS: paramagnetic molecular amplifier, paramagnetic amplifier dead time, amplifier dead time reduction, thermodynamic balance restoration, spin system repeated inversion

ABSTRACT: A new method has been developed for reducing the dead time of two-level paramagnetic molecular amplifiers, i.e., shortening the time required for the restoration of the thermodynamic balance between spin system and lattice. Applicable to any active material, the method consists basically in repeated inversions of the spin system during the time $\tau \ll T_1$ following the first inversion (T_1 is spin-lattice relaxation time, τ is the period of active operation of the amplifier). The method was tested experimentally on a two-level tuned paramagnetic amplifier operating at

Card 1/3 - 13 (2/102) -

L 18494-63
ACCESSION NR: AP3006460

9000 Mc. A quartz single crystal with paramagnetic defects caused by fast neutron bombardment served as the active material. Paired identical pulses (power, 0.5 w) with variable durations of 70 to 120 sec and an adjustable time interval between them of 0 to 4 msec were fed through a ferrite circulator to a cavity for the purpose of spin-system inversion. A magnetic-field pulse modulator operating under conditions of shock excitation of 3.3-kc oscillations was synchronized with a paired-pulse generator and an oscilloscope. The modulating coils were placed over the cavity. The hf inversion pulses were applied to these coils during a period when the magnetic field changed from $H > H_r$ to $H < H_r$ (H_r is the resonance value of the magnetic field). A 10^{-11}-w CW control signal from a signal generator operating at 9000 Mc was applied to the circulator. After the first inversion signal amplification as well as modulation occur every time the magnetic field passes through its resonance value; after the second inversion electron paramagnetic resonance absorption was noted instead of amplification. Orig. art. has: 4 figures and 5 formulas.

ASSN: INSTITUTE OF RADIO PHYSICS AND ELECTRONICS, ACADEMY OF SCIENCES USSR

Card 2/3

L 19442-63 BDS/EEC(b)-2 AFFTC/ASD

ACCESSION NR: AP3006459 S/0109/63/008/009/1567/1572

AUTHOR: Shamfarov, Ya. L.; Smirnova, T. A.

TITLE: Experimental study of a two-level 9000-Mc paramagnetic amplifier

SOURCE: Radiotekhnika i elektronika, v. 8, no. 9, 1963, 1567-1572

TOPIC TAGS: two-level paramagnetic amplifier, quartz single crystal, paramagnetic defect fast neutron irradiation, paramagnetic amplifier oscillating condition, paramagnetic amplifier amplifying condition

ABSTRACT: This paper describes the equipment and the results of an experimental investigation of a two-level paramagnetic amplifier operating at 9 kMc. A quartz single crystal with paramagnetic defects caused by fast neutron irradiation (the dose was 3×10^{19} neutron·cm^{-2}) was utilized as the basic active material in the amplifier. The experimental setup consisted of 1) a reflex-type resonator with the active material placed in a helium cryostat,

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2) a ferrite circulator, 3) a klystron pulse oscillator, and 4) a magnetic-field pulse modulator. In addition, a superheterodyne receiver, a single-sweep oscilloscope, and a control signal generator were employed. The klystron oscillator, operating at 9 kMc, generated pulses 50—120 μ sec in duration with prf of 5—25 cps and power of 0.5 w which were fed through the ferrite circulator to the cavity resonator. The magnetic-field modulator providing sinusoidal current pulses for the modulating coils, which were placed over the resonator and operated at a temperature of 4.2K, was synchronized with the klystron and the oscilloscope. Application of the sinusoidal current pulses with duration of one period, made it possible to change the magnetic field in the modulating coils adiabatically from $H < H_0$ to $H > H_0$ (H_0, resonance value of the magnetic field) during the action of the hf pulses on the quartz specimen. Measurements were performed for both oscillating and amplifying states of the device. In the first case, output pulses with power of 2 mw and duration of 0.5 msec were obtained at a temperature of 4.2K. The oscillatory character of the pulses was noted, and the frequency of the oscillations was found to be

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L 19442-63
ACCESSION NR: AP3006459

90 kc. In the second case, with a bandwidth of 1 Mc, the gain-bandwidth product obtained 250 μ sec after the inversion was 16 ± 2 Mc. The gain decreased to unity within 5.5 sec after the inversion. The signal-to-noise ratio of the control receiver without the amplifier described was two with an input signal power of 1×10^{-3} to 2×10^{-13} w; the same receiver with the amplifier had a signal-to-noise ratio of three at an input signal of 10^{-14} w. Orig. art. has: 5 fromulas and 5 figures.

ASSOCIATION: Institut radiofiziki i elektroniki AN USSR (Institute of Radio Physics and Electronics, Academy of Sciences, USSR)

SUBMITTED: 02Aug62 DATE ACQ: 30Sep63 ENCL: 00

SUB CODE: SD NO REF SOV: 003 OTHER: 008

Card 3/3

L 1404-64 EWT(1)/EPF(c)/EPF(n)-2/BDS AFFTC/ASD/IJP(C)/SSD Pr-4/
Pu-4 WW
ACCESSION NR: AP3008319 S/0120/63/000/005/0134/0138

AUTHOR: Shamfarov, Ya. L.

TITLE: A system for studying electronic spin-lattice relaxations at low temperatures and at 9 cps

SOURCE: Pribory* i tekhnika eksperimenta, no. 5, 1963, 134-138

TOPIC TAGS: spin lattice relaxation, electronic spin lattice relaxation, low temperature spin lattice relaxation, spin lattice relaxation measurement, spin relaxation measuring system, maser

ABSTRACT: A system is described which is designed for the investigation of electronic spin-lattice relaxations at low temperatures by the method of sinusoidal pulse modulation of the static magnetic field in which spin-system inversion is achieved by means of fast adiabatic transfer. This technique uses the influence of a strong hf magnetic field on the spin system during the time when modulated quasi-static magnetic field H passes through resonance value H_0 from $H < H_0$ to $H > H_0$ and back again. When this occurs, the spin

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ACCESSION NR: AP3008319

system becomes magnetized in a direction opposite to the magnetic field which is equivalent to population inversion. The subsequent return to thermodynamic equilibrium is observed by means of a superheterodyne spectrometer. As a result of the magnetic field modulation, signals of EPR absorption or stimulated emission are recorded twice during each modulation period. The system consists of two basic units, an inversion unit and a superheterodyne spectrometer with a cavity resonator (Fig. 1 of Enclosure). The inversion unit incorporates an x-band pulse-modulated klystron delivering bursts of 9 Gc lasting 10—200 μsec; to the resonator the bursts are synchronized to the modulator, which is an audio oscillator with a frequency of 0.3—5 kc and a pulse duration adjustable from 1 to 400 msec. The oscillator provides sinusoidal current pulses to the modulating coils, which are located in the cavity and operated at 4.2K. Measurements were performed on quartz single-crystal specimens with paramagnetic defects caused by fast-neutron irradiation. Fig. 2 is an oscillogram of the spin-system relaxation after inversion, where the negative portion corresponds to stimulated emission and the positive, to absorption; the envelope of the individual EPR signals thus defines

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548420017-9"

L 1404-64
ACCESSION NR: AP3008319

the relaxation process. The system is capable of obtaining and measuring relaxation times from 1 msec up to 1 sec with an error not exceeding ±10%. Orig. art. has: 6 figures and 10 formulas.

ASSOCIATION: Institut radiofiziki i elektroniki AN USSR (Institute of Radio Physics and Electronics, Academy of Sciences USSR)

SUBMITTED: 14Nov62 DATE ACQ: 29Oct63 ENCL: 02

SUB CODE: SD NO REF SOV: 002 OTHER: 003

Card 3/5

SHAMFAROV, Ya.L.

Relfex klystron as a microwave phase modulator. Radiotekh. i elektron. 8 no.10:1715-1718 O '63. (MIRA 16:10)

1. Institut radiofiziki i elektroniki AN UkrSSR.

SHAMFAROV, Ya.L.

Method for stabilizing the frequency of reflex klystrons.
Radiotekh. i elektron. 11 no.1:75-81 Ja '66. (MIRA 19:1)

1. Institut radiofiziki i elektroniki AN UkrSSR.

L 01822-67 EWP(e)/EWT(m) GG/WH

ACC NR: AP6030958 SOURCE CODE: UR/0181/66/008/009/2605/2609

39
B

AUTHOR: Shamfarov, Ya. L.

ORG: Institute of Radiophysics and Electronics, AN UkrSSR, Kharkov (Institut radiofiziki i elektroniki AN USSR)

15

TITLE: Investigation of electron spin-lattice relaxation in quartz irradiated by neutrons at a frequency of 37 Gc in the region of helium temperatures

19

SOURCE: Fizika tverdogo tela, v. 8, no. 9, 1966, 2605-2609

TOPIC TAGS: spin lattice relaxation, quartz crystal, neutron irradiation, temperature dependence, crystal defect

ABSTRACT: The results are discussed for an experimental investigation of the temperature dependence of spin-lattice relaxation time T, in paramagnetic defects induced in quartz single crystals by fast neutron bombardment. The measurements were carried out at a frequency of 37 Gc in the helium temperature region of 1.7—4.2K. A comparison of results obtained at 37 Gc with those previously obtained at 9 Gc has revealed an anomalous dependence of the relaxation rate on the static magnetic field H_0. Instead of a decrease in spin-lattice relaxation time with

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L 01822-67
ACC NR: AP6030958

$T_1 \sim H_0^{-1}$ for single-phonon processes and the independence of T_1 on H_0 for multiphonon processes (which would be expected following the Kronig-Van Vleck theory), it was observed that in a specimen with a lower spin concentration such a $T_1 \sim H_0$ linearly increases over the entire temperature range. In a specimen with higher concentration, the dependence of T_1 on H_0 varies with variation in temperature from $T_1 \sim H_0^2$ at 1.7K to $T_1 \sim H_0^{0.8}$ at 4.2K. Orig. art. has: 2 figures and a bibliography of 10 titles. [Author's abstract] [DW]

SUB CODE: 20/ SUBM DATE: 14Jan66/ ORIG REF: 004/ OTH REF: 006/

Card 2/2 fv

ACC NR: AP6036375 SOURCE CODE: UR/0109/66/011/011/2044/2052

AUTHOR: Shamfarov, Ya. L.

ORG: Institute of Radio Physics and Electronics, AN UkrSSR (Institut radiofiziki i elektroniki AN UkrSSR)

TITLE: A two-level solid state maser in the 8-mm band with increased recurrence frequency of inversion

SOURCE: Radiotekhnika i elektronika, v. 11, no. 11, 1966, 2044-2052

TOPIC TAGS: maser, solid state maser, quartz crystal

ABSTRACT: Results of an experimental study of a two-level cavity maser working at a frequency of 37,200 Mc are given. A neutron-irradiated quartz crystal operating at a temperature of 4.2K was used as the active element of the maser. The maser was excited using an adiabatic fast-passage method: its output power in the self-oscillating mode was 100 μw with an output time duration of 70 μsec. A gain-bandwidth product of 22 Mc was obtained at a bandwidth of 2 Mc for the amplifying mode of operation. The recurrence frequency of inversion was increased from 10 to 50 cps at $\tau/1 = 5 \times 10^{-2}$ (τ is the active working time of the amplifier, and T_1 is the spin-lattice relaxation time) when a repeated inversion method was used. It was established experimentally that the spin-lattice relaxation time of F-center in quartz increases with increasing magnetic field intensity at a temperature of

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ACC NR: AP6036375

4.2K: this relationship which can be expressed approximately as ($T_1 \sim H_0^{0.8}$) made possible the use of this active material in the maser. Orig. art. has: 8 figures and 4 formulas.

SUB CODE: 20/ SUBM DATE: 02Jun65/ ORIG REF: 003/ OTH REF: 004/
ATD PRESS: 5106

Card 2/2

ACC NR: AP6036376 SOURCE CODE: UR/0109/66/011/011/2053/2056

AUTHOR: Shamfarov, Ya. L.

ORG: Institute of Radiophysics and Electronics, AN UkrSSR (Institut radiofiziki i elektroniki AN UkrSSR)

TITLE: Use of a nonuniformly widened line of electron paramagnetic resonance for increasing the active time of two-level masers 15

SOURCE: Radiotekhnika i elektronika, v. 11, no. 11, 1966, 2053-2056

TOPIC TAGS: maser, solid state maser, quartz crystal

ABSTRACT: An experiment is described which shows that if the spin resonance line of a two-level maser is nonuniformly widened, it is possible to double (for example) the active time of the maser by using different groups of spin packets. The maser (see Fig. 1) uses a neutron-irradiated quartz crystal as its active element. It is excited by an adiabatic fast-process method, operates at a temperature of 4.2K, and has an 8-mm output wavelength. Piecewise inversion (two-piece in this case) of the spin resonance line is accomplished by applying two frequencies separated by ~14 Mc and generated by the inversion pulse generator. This generator consists of a backward wave oscillator whose frequency is controlled by the voltage across a tank capacitor. The capacitor discharges during the interval between the first and second pulses so that the frequency of the second pulse varies from that of the first

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ACC NR: AP6036376

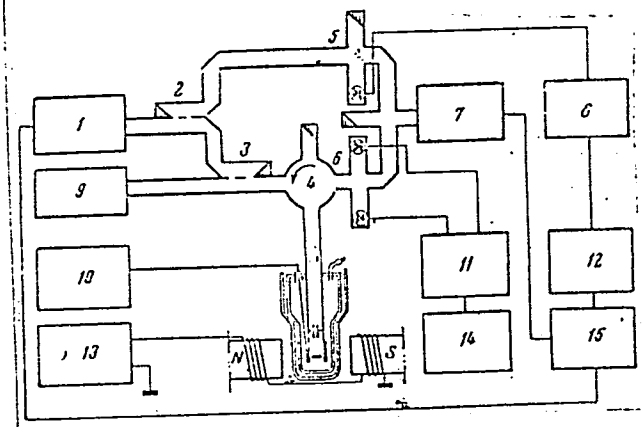

Fig. 1. Block schematic of the experimental maser set-up

1 - Signal klystron; 2, 3 - directional couplers; 4 - ferrite circulator; 5, 6- crystal mixers; 7 - heat oscillator; 8, 11 - intermediate frequency amplifiers; 9 - high-frequency inversion pulse generator; 10 - magnetic field generator; 12 - frequency discriminator; 13 - current stabilizer for the magnet; 14 - oscillograph; 15 - klystron power supply.

by about 10—15 Mc. A continuous signal power of 10^{-10}w is applied to the input of the maser. Modulation of the input signal is accomplished by modulating the magnetic field with 4-kc sinusoidal signal packets that are synchronized with the inversion frequency. Experimental variations of the maser amplification as a function of relative time qualitatively agreed with anticipated values. Orig. art. has: 5 figures.

SUB CODE: 20/ SUBM DATE: 02Jun65/ OTH REF: 001/ ATD PRESS: 5106

Card 2/2

SHAMGIN, V. K.

USSR (600)

Dairying - White Russia

In the Minsk processed cheese factory Mol prom. 13 No 4, 1952

9. Monthly List of Russian Accessions, Library of Congress, June 1952, Uncl.

SHAMGIN, V.K.

Mechanization and automation of production in processes in the meat and diary industry. Mekh. i avtom. proizv. 16 no.6:14-16 Je '62. (MIRA 15:6)

1. Nachal'nik Upravleniya myaso-molochnoy promyshlennosti soveta narodnogo khozyaystva BSSR.
(Automation)
(White Russia—Dairy plants—Technological innovations)
(White Russia—Meat industry—Technological innovations)

BALAKIN, A., inzh.; SHAMGIN, Yu., inzh.

"Naroch'" radio receiver. Radio no.8:25-26 Ag '63. (MIRA 16:9)
(Radio--Receivers and reception)

VLASOV, S.G., inzh.; SHAMGUNOVA, R.A., inzh.

Computers for the use of planning organizations. Stal' 25 no.5:459-460 My '65. (MIRA 18:6)

SOV/180-59-3-14/43

AUTHORS: Ignatov, D.V. and Shamgunova, R.D., (Moscow)

TITLE: The Mechanism of Oxidation of Nickel-Chromium Based Alloys

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 3, pp 83-87 (USSR)

ABSTRACT: Alloys investigated were 80% Ni 20% Cr, Ni-Cr-Al alloys containing 20% Cr and up to 10% Al; and Ni-Cr-Ti alloys with 20% Cr and up to 10% Ti. Figure 1 shows the oxidation rates for various alloys at different temperatures. Electrongrams were taken of the surface films. Table 1 shows the structures of the films and Fig 3 gives typical electrongrams. Results show that the rate of oxidation of the nichrome alloy is lower than that for chromium at 800 to 1000°C. This is because there forms on the surface a film containing the compound $NiCr_2O_4$ which is very stable. The oxidation rate of nichrome is also reduced by aluminium additions, especially at temperatures higher than 700°C. In order to obtain successful protection, 4-5% Al at 900°C and 7% at 1000°C is required. An addition of 0.68% Ti also decreases the oxidation rate but 3.4% and more increases the oxidation rate because Ni_3Ti is formed and also

Card 1/2

IGNATOV, D.V.; SHAMGUNOVA, R.D.

Structural and kinetic study of the oxidation process of nickel, chromium, and their alloys. Issl.po zharopr.splav. 4:346-351 '59. (MIRA 13:5)
(Nickel--Corrosion) (Chromium--Corrosion)

SHAMGUNOVA, R D

PHASE I BOOK EXPLOITATION SOV/3828

Ignatov, Daniil Vasil'yevich, and Roza Davletovna Shamgunova

O mekhanizme okisleniya splavov na osnove nikelya i khroma (Oxidation Mechanism of Nickel-Chromium Alloys) . Moscow, Izd-vo AN SSSR, 1960. 105 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii.

Resp. Ed.: N.V. Ageyev, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: B.V. Mints; Tech. Ed.: L.A. Sushkova.

PURPOSE: This book is intended for metallurgists, particularly those concerned with the oxidation of nickel-chromium alloys.

COVERAGE: The basic methods used in investigating oxidation processes in metals and nickel-chromium alloys in gaseous media at elevated and high temperatures (400-1050°C) are discussed. The principal results of experimental studies on the kinetics of oxidation, the structure and composition of oxide films which

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Oxidation Mechanism of Nickel (Cont.)

form on Ni-Cr alloys and their separate components depending on time and heating temperature are described. The effect of various alloying elements on the heat resistance of these alloys is also discussed. Recent theories on the oxidation of metals and alloys are presented and the possibility of using them to explain the mechanism of oxidation in Ni-Cr alloys is examined. No personalities are mentioned. There are 117 references: 52 Soviet, 39 English, 12 German, 6 French, and 8 others.

TABLE OF CONTENTS:

PHASE I BOOK EXPLOITATION SOV/5544

Tomashov, N. D., Doctor of Chemical Sciences, Professor, ed.

Korroziya i zashchita konstruktsionnykh metallicheskikh materialov; sbornik statey (Corrosion and Protection of Constructional Metals; Collection of Articles) Moscow, Mashgiz, 1961. 298 p. Errata slip inserted. 10,000 copies printed.

Ed. of Publishing House: N.P. Yevstaf'yeva; Tech. Ed.: G.V. Smirnova; Managing Ed. for Literature on Chemical and Textile Machine Building: V.I. Rybakova, Engineer.

PURPOSE: This collection of articles is intended for scientific and technical personnel concerned with the corrosion and protection of metals.

COVERAGE: The collection deals with problems of the corrosion of constructional metals in various environments and conditions. Articles discuss new methods for the investigation and testing of corrosion and give results of recent research conducted on the corrosion and protection of metal constructions. The corrosion of some new alloys is also considered. The collection includes articles generalizing the results of research conducted during the last 2-3 years in the Department for Corrosion of Metals of the Moskovskiy institut stali (Moscow Steel Institute). Some of the articles were written in cooperation with the laboratory staffs of the "Serp i molot" Plant and Khimicheskiy zavod im. M.I. Kalinina (Chemical Plant imeni M.I.Kalinin) and are based on investigations conducted at these plants. No personalities are mentioned. There are 219 references, Soviet and non-Soviet. References accompany each article.

TABLE OF CONTENTS:

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AVAILABLE: Library of Congress (TA462.T64)

AVAILABLE: Library of Congress (TA462.T64)

33843
S/137/62/000/001/186/237
A006/A101

18.8300

AUTHORS: Tomashov, N.D., Al'tovskiy, R.M., Prosvirin, A.V., Shamgunova, R.D.

TITLE: Corrosion of titanium and its alloys in sulfuric acid

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 1, 1962, 82 - 83, abstract 1I583 (V sb. "Korroziya i zashchita konstrukts. metallich. materialov", Moscow, Mashgiz, 1961, 151 - 163)

TEXT: The general aspect of BT 1 (VT1) Ti corrosion rate as a function of H_2SO_4 concentration under air atmosphere is also preserved in tests under O_2, H_2 and N_2 atmospheres and also during tests of some Ti alloys (VT5, VT3, VT3-1) under air atmosphere. The corrosion rate of Ti VT1 in H_2SO_4 under atmospheres of O_2, H_2 and N_2 (with the exception of diluted H_2SO_4 solutions) is somewhat less than under air atmosphere. Alloys Ti VT5, VT3 and VT3-1, are in general somewhat less stable than technically pure VT1 Ti in H_2SO_4 solutions. Saturation of the Ti surface with oxygen, and in particular N_2 and H_2, raises considerably the corrosion resistance of Ti in H_2SO_4. Preliminary hydrogenization of the Ti surface by cathodic polarization during self-diffusion in H_2SO_4, inhibits the corrosion process of Ti dissolving in H_2SO_4, in particular of 50 - 65% concentration. A

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33843
S/137/62/000/001/186/237
A006/A101

Corrosion of titanium ...

decrease of the Ti corrosion rate in H_2SO_4 of > 80% concentration is explained by the oxidation of the metal surfaces by concentrated acid and the formation of a protective film consisting of Ti_3O_5.

The authors' summary

[Abstracter's note: Complete translation]

Card 2/2

SHAMGUNOVA, S.B.

Incidence of poliomyelitis in Bukhara Province as shown by data of the province hispital from 1948 to 1956. Med.zhur.Uzb. no.10: 74-75 O '58. (MIRA 13:6)

1. Iz nevrologicheskogo otdeleniya Bukharskoy oblastnoy bol'nitsy (glavnyy vrach - I.I. Aminov).
(BUKHARA PROVINCE--POLIOMYELITIS)

GABRIELYAN, M.I.; SAMIBAYEV, M.Kh.; SHAMGUNOVA, S.B.

Analysis of vascular diseases of the brain as revealed by data from the Clinic for Nervous Diseases of the Samarkand Medical Institute. Zhur. nevr. i psikh. 61 no.5:705-706 '61. (MIRA 14:7)

1. Kafedra nervnykh bolezney Samarkandskogo meditsinskogo instituta imeni I.P.Pavlova.

(BRAIN—DISEASES)

SHAMIDANOV, Sh.

Our first experience in laying out plans for collective farms. (MIRA 11:6)
Sel'. stroi. 13 no.6:16-18 Je '58.

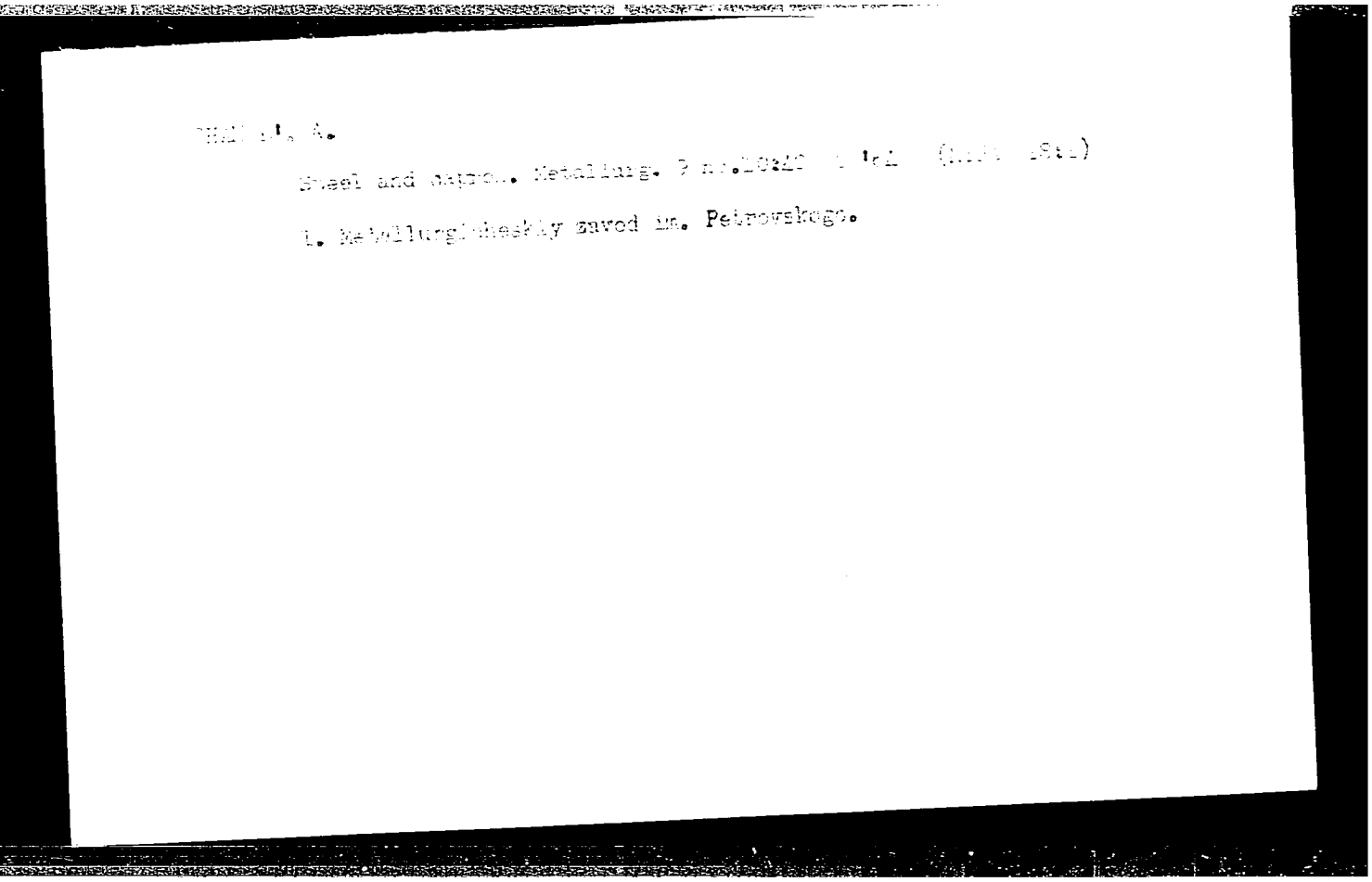
1.Nachal'nik otdela po stroitel'stvu v kolkhozakh Mishkinskogo rayona Bashkirskoy ASSR.
(Mishkino District--Farm buildings)

SHAMIDE, A.I.

[Worker and trade-union movement in Iran, 1941-1946]Rabochee i profsoiuznoe dvizhenie v Irane, 1941-1946. Baku, Akad. nauk Azerbaidzhanskoi SSR. 1961. 179 p. (MIRA 15:10)
(Iran--Trade unions)
(Iran--Labor and laboring classes)

SHAMIGOV, I.P., mashinist

Protecting the damp coal feeders against choking (scraper type). (MIRA 13:6)
Energetika 8 no.3:8 Mr '60.
(Coal--Handling machinery)



"Hil' [illegible] A.

Steel and nonfe... Metallurg. ? no.10[illegible] [illegible] (1[illegible] 1St.)

1. Metallurgicheskiy zavod im. Petrovskogo.

G/139/62/000/009/003/009
A054/A127

AUTHOR: Chuyko, N.M., Doctor of Technical Sciences, Rutkovskiy, V.B., Danilenok, R.Ye., Perevyazko, A.T., [illegible], Tregubenko, A.F., Shamil', Ya.F., Frantsov, V.P., Volovich, V.G., - Engineers

TITLE: Blowing inert gases through the metal in the ladle under vacuum

PERIODICAL: Stal', no. 9, 1962, 809 - 811

TEXT: Vacuum treatment of liquid steel promotes the removal of gases and reduces the amount of nonmetallic inclusions. Tests were carried out (in cooperation with I.M. Ioffe, M.I. Lavrent'yev, G.P. Parkhomenko, V.I. Demidenko, Ye.M. Rybin, and T.M. Vorob'yeva, Engineers) to determine the optimum methods of blowing inert gases through the liquid metal in the ladle in combination with the vacuum treatment. The method established does not require special refractory materials, the apparatus used (designed by N.M. Chuyko, Professor and Ye.I. Livreyev, Engineer) is of a simple design and metal losses through the spout can be prevented. The argon feed can be controlled very closely by means of 3 rotameters [RC-7 (RS-7) type], having 30 standard m^3/h capacity and supplied with

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S/133/62/000/009/013/009
A054/A127

Blowing inert gases through the metal in ....

needle valves. The test steel [3X15 (ShKh15)] was smelted in four versions: I. blowing through the reduced metal in the ladle under atmospheric pressure; II. the same, under vacuum; III. vacuum treatment of non-reduced metal, containing less than 0.05% Si, in the ladle and reduction with ferrosilicon and aluminum at the end of the process; IV. blowing through non-reduced metal in the ladle under vacuum, with addition of ferrosilicon and aluminum at the end of blowing. Ferrosilicon was added in an amount to ensure 0.27 - 0.28% Si content in the metal, the amount of aluminum added was 0.5 kg/ton. The technically pure argon gas contained 0.003 - 0.00?% oxygen and maximum 0.01% nitrogen. The hydrogen content of the metal (both in reduced and non-reduced condition) could most efficiently be removed when argon gas was blown through at residual pressures of 10 - 12 mm mercury column in the vacuum chamber, with a blowing time of at least 5 min. A maximum reduction of the oxygen content can be obtained by blowing gas into the ladle through non-reduced metal under vacuum (IV). With regard to nonmetallic inclusions the best results are attained by versions III and IV. Some of the heats were entirely without spheroidal inclusions. The amount of oxygen and of impurities also depends on the degree of reduction of the slag, in view of the intensive mixing of metal and slag during blowing. The

Card 2/3

Bubbles [illegible] through the metal in ....

[illegible] content (0.0[illegible]%) and the smallest number of oxide and spheroidal inclusions are ensured when argon is blown in amounts of 0.05 - 0.06 m³/ton. Under vacuum, at remanent pressures of 18 - 30 mm Hg. The intense stirring of the metal caused by the argon gas blown into the ladle also causes a uniform distribution of silicon in the bottom part of the ladle and its complete absorption. There are 3 figures. The English-language reference is: Iron and Steel Engineer, 1959, v. 36, no. 9 (September), 192.

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CHUYKO, N.M., doktor tekhn.nauk; RUTKOVSKIY, V.B., inzh.; DANICHEK, R.Ye., inzh.; PEREVYAZKO, A.T., inzh.; BORODULIN, G.M., inzh.; TREGUBENKO, A.F., inzh.; SHAMIL', Yu.P., inzh.; FRANTSOV, V.P., inzh.; VOLOVICH, V.G., inzh.; Prinimali uchastiye: IOFFE, I.M., inzh.; LAVRENT'YEV, M.I., inzh.; PARKHOMENKO, G.P., inzh.; DEMIDENKO, V.I., inzh.; RYSIN, Ye.M., inzh.; VOROB'YEVA, T.M., inzh.

Inert gas blowing of metal in the ladle in vacuum. Stal' 22 no.9:809-811 S '62. (MIRA 15:11)
(Vacuum metallurgy) (Protective atmospheres)

BORODULIN, G.M., inzh.; SMOLYAKOV, V.F., inzh.; MOSHKEVICH, Ye.I., inzh.; SHAMIL', Yu.P., inzh.

Technology of the production of chromium-nickel stainless steel with a carbon content of not more than 0.03%. Stal' 23 no.1:27-29 Ja '63. (MIRA 16:2)

1. UkrNIISpetsstal' i Dnepropetrovskiy staleplavil'nyy zavod vysokokachestvennykh i spetsial'nykh staley.
(Chromium-nickel steel—Electrometallurgy)

OKOROKOV, G.N., kand.tekhn.nauk; BOYARSHINOV, V.Ya., kand.tekhn.nauk; SHAMIL', Yu.P., inzh.; LEYBENZON, S.A., inzh.; PAKHOMOV, A.I., inzh.; POLYAKOV, A.I., inzh.

Improving the macrostructure of ShKh15 steel made in a vacuum arc furnace. Stal' 23 no.1:30-34 Ja '63. (MIRA 16:2)

1. Dnepropetrovskiy staleplavil'nyy zavod vysokokachestvennykh i spetsial'nykh staley i TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.
(Steel—Electrometallurgy) (Vacuum metallurgy)

BABAKOV, A.A.; FEDOROVA, V.I.; SOLOV'YEV, L.L.; IOFA, V.N.; DOLOKA, L.I.; CHERKASHINA, N.P.; SHAMIL', Yu.P.; SMOLYAKOV, V.F.; BABKOV, T.M.; MOCHKEVICH, Ye.I.; PAPALA, A.N.; REPESHKO-KRAVCHENKO, S.I.; ALEKSEYENKO, M.F.; KONOBKO, M.I.; KONOBKO, I.M.; ACHKIN, N.M.; MATOV, A.A.; MEGUTSKIY, L.R.

Inventions. Net. i gornorud. prom. no.4:83 Jl-Ag '64.
(MIRA 18:7)

PIROGOV, A.A.; LEVE, Ye.N.; KHASS, Ya.P.; SHAMIL', Yu.P.; KUDRYAVTSEV, V.V.; VASIL'YEV, S.N.; REZCHIK, V.G.

Testing unifired molded, brick made of magnesia concrete in electric arc furnace walls. Stal' 24 no.8:710-711 Ag '64. (MIRA 17:9)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov i zavod "Dneprospetsstal'".

L 63561-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) MJW/JD/HW

ACCESSION NR: AP5013229 UR/0133/65/000/005/0420/0422

669.187.2

AUTHOR: Moshkevich, Ye. I.; Smolyakov, V. F.; Babkov, T. M.; Shamil', Yu. P.

TITLE: Production of DI-6 (Kh13G14N3) steel

SOURCE: Stal', no. 5, 1965, 420-422

TOPIC TAGS: stainless steel, steel sheet, chromium-manganese-nickel steel

ABSTRACT: A new low-nickel stainless steel, DI-6, to replace Kh18N10T steel in equipment operating in moderately corrosive media is described. A ferrite content of 1-3% was found in samples at room temperature and also in samples heated to 1250°C, held for 2 hours and quenched. Basic mechanical properties, which meet specifications, are shown. Although the metal consumption coefficient for DI-6 is higher than that for Kh18N10T, it is believed that this will be corrected by future production improvements and increased demand for the product. Two methods, the new charge method and the remelt method, were used. Preference was given to the remelt method as it is more economical and requires less time. This method involves the use of stainless steel scrap, DI-6 scrap, carbon, silicon and ferrochrome scrap,

Card 1/2

L 63561-65

ACCESSION NR: AP5013229

oxygen injection, and slag deoxidation. Alloying with manganese and adjustment of the metal with chromium and nickel was begun at a temperature of 1650-1680°C. From the point of view of slab defects, a ladle temperature between 1500 and 1510°C and filling times of 140-200 seconds for 11-13-ton slabs were found to be optimal. Slabs had good surface characteristics with the introduction of flame cleaning as one means of obtaining a good surface. The cost of DI-6 slabs is found to be 30% lower per ton than that for Kh18N10T. Orig. art. has: 3 figures, 4 tables.

ASSOCIATION: Zavod "Dneprospetsstal'" (Dneprospetsstal' Plant)

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 001 OTHER: 000

Card 2/2

L 42222-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JT

ACC NR: AP6029056 SOURCE CODE: UR/0413/66/000/014/0082/0082

INVENTOR: Averchenko, P. A.; Alekseyenko, M. F.; Babakov, A. A.; Babitskaya, A. N.; Batrakov, V. P.; Bondarenko, A. L.; Gabuyev, G. Kh.; Yel'tsov, K. S.; Kulygin, G. V.; Lola, V. N.; Orekhov, G. N.; Pridantsev, M. V.; Sklyarov, P. I.; Smolyakov, V. F.; Soroko, L. N.; Solov'yev, L. L.; Frantsov, V. P.; Shamil', Yu. P.; Moshkevich, Ye. I.; Natanov, B. S.

ORG: none

TITLE: Stainless steel. Class 40, No. 183947.

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 82

TOPIC TAGS: stainless steel, chromium titanium steel, molybdenum containing steel, nitrogen containing steel, titanium containing steel

ABSTRACT: This Author Certificate introduces a stainless steel containing chromium, molybdenum, and nitrogen. In order to improve weldability, the steel has the following composition: 0.08% C, up to 0.8% Mr, up to 0.8% Si, 15—18% Cr, 0.2—0.6% Mo, 0.04—0.15 N, 0.4—1.2% Ti, up to 0.035 S, and up to 0.030 P. [WW]

SUB CODE: 11/ SUBM DATE: 30Jan65/ Art press: steels

Card 1/1 UDC: 669.14.018.8: 669.15'26-194

SHAMILEV, I.A. (Moskva, I-254, ul. Dobrolyubova, d.11, kv.8)

Clinical aspects and surgical treatment of nodular sporadic goiter. Vest.khir. no.1:34-40 '62. (MIRA 15:1)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (zav. - prof. A.A. Busalov) 2-go Moskovskogo meditsinskogo instituta im. N.I. Pirogova.

(GOITER)

SHAMILEV, I.A. (Moskva)

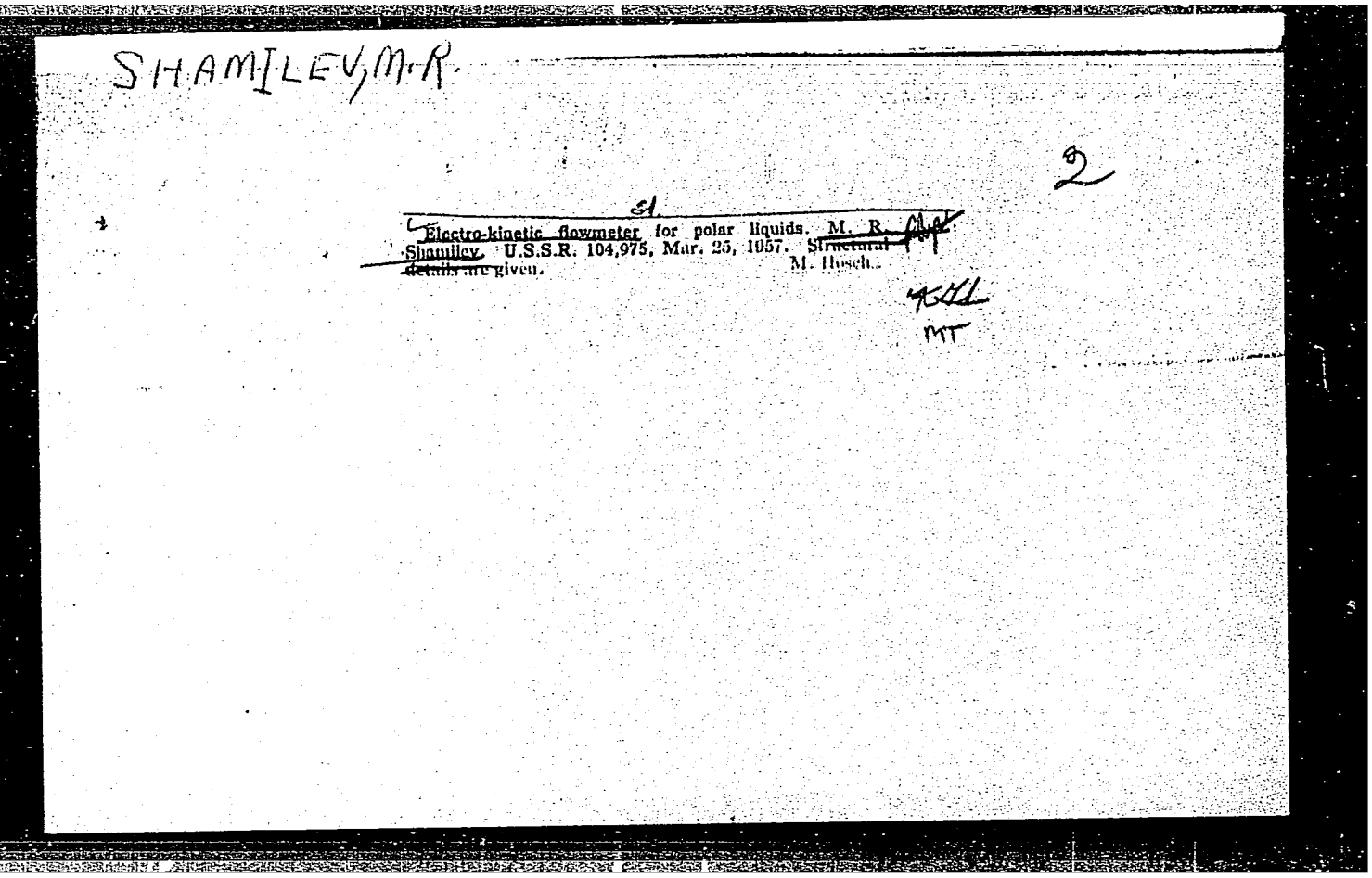
Clinical aspects and treatment of Hashimoto's struma. Probl. endok.i gorm. no.4:95-104 '62. (MIRA 15:11)

1. Iz kliniki fakul'tetskoy khirurgii (zav. - prof. A.A. Busalov) II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova (dir. - dotsent M.G. Sirotkina).
(THYROID GLAND--DISEASES)

SHAMILEV, I.A. (Moskva, I-254, ul. Dobrolyubova d.11, kv. 8)

Functional and morphological changes in the thyroid gland in nodular sporadic goiter. Vest. khir. 92 no.1:63-67 Ja '64. (MIRA 17:11)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (zav. - prof. A.A. Busalov) pediatricheskogo fakul'teta 2-go Moskovskogo meditsinskogo instituta imeni Pirogova.



SHAMILEV, M. R.

2

Electro-kinetic flowmeter for polar liquids. M. R. Shamilev. U.S.S.R. 104,975, Mar. 25, 1957. Structural details are given.
M. Hosch.

MERSON, Yakov Iosifovich, inzh.; SHAMILEV, Mikhail Richardovich, inzh.; RAZIN, Konstantin Alekseyevich, inzh.; SHTEYNBOK, G.Yu., inzh., ved. red.; SOROKINA, T.M., tekhn. red.

[Photopyrometry for the determination of surface temperature fields] Fotopirometricheskoe opredelenie polei temperatur poverkhnostei. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 21 p. (Peredovoi nauchno-tekhn. i proizvodstvennyi opyt. Tema 34. No.P-58-91/11) (MIRA 16:3)
(Pyrometry) (Photometry) (Surfaces (Technology))

AVER'YANOV, I.P.; KASATKIN, A.M.; LIVENTSOV, A.V.; MARKOV, M.N.; MERSON, Ya.I.; SHAMILEV, M.R.; SHERVINSKIY, V.Ye.;

Measurement of the emerging heat radiation of the earth from a high-altitude geophysical automatic station during the total solar eclipse of Februrary 15, 1961. Isk.sput.Zem. no.14:49-56 '62. (MIRA 15:11)
(Heat--Radiation and absorption)
(Atmosphere, Upper--Rocket observations)

LIVENTSOV, A.V.; MARKOV, M.N.; MERSON, Ya.I.; SHAMILEV, M.R.

Experimental determination of the radiation leaving the earth. Dokl. AN SSSR 146 no.2:344-346 S '62. (MIRA 15:9)

1. Predstavleno akademikom A.A. Blagonravovym.
(Atmosphere, Upper—Rocket observations)

MARKOV, M.N.; MERSON, Ya.I.; SHAMILEV, M.R.

Use of geophysical aerostats in studying the stratospheric and tropospheric heat radiation fields in the infrared spectral region. Kosm. issl. 1 no.2:235-248 S-O '63. (MIRA 17:4)

L 52504-65 EWT(1)/EWG(v)/FCC Pe-5/Pae-2 GS/GW

ACCESSION NR: AT5011154 UR/0000/64/000/000/0044/0050

24
23
B+1

AUTHOR: Markov, M.N.; Merson, Ya. I. Shamilev, M.R.

TITLE: Investigation of the angular distribution of the infrared radiation of the earth and its atmosphere from geophysical balloons

SOURCE: Mezhvedomstvennoye soveshchaniye po aktinometrii i optike atmosfery 5th, Moscow, 1963. Aktinometriya i optika atmosfery (Actinometry, and atmsopheric optics); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1964, 44-50

TOPIC TAGS: geophysical balloon, terrestrial infrared radiation, atmospheric infrared radiation, stratosphere, troposphere

ABSTRACT: This paper presents the results of measurements of the angular distribution of terrestrial radiation from geophysical balloons. The primary objective of the study was to determine the total radiation in the lower stratosphere and troposphere. Measurements were made mostly at heights of 25-30 km. Emphasis was on determining the form of angular distribution as a whole, the degree of isotropic distribution and the possibility of detecting meteorological inhomogeneities on the basis of thermal radiation in a broad infrared region of the spectrum (0.8-40 μ). Several series of ascents were made in 1960-1961. The block diagram of the recorder is shown in Fig. 1 of the

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L 52504-65

ACCESSION NR: AT5011154

Enclosure. The instrument consists of an optical head, small amplifier, a mechanism for rotating the scanning head and a mechanism for orienting the instrument. Measurements were made in the central zone of the European SSSR. Each ascent yielded the following experimental data: 1. The angular distribution of the intensity of infrared radiation of the earth and atmosphere in the direction of space. 2. A flight barogram. 3. Data from the astrophotographic unit. 4. Photographs of the underlying surface and space in the visible region of the spectrum. Fig. 2 of the Enclosure shows the angular distribution of radiation for several scanning cycles on four flights at different heights (season the same for all flights). Orig. art. has: 5 figures.

ASSOCIATION: Fizicheskiy institut imeni P.N. Lebedeva AN SSSR (Physics institute, AN SSSR)

SUBMITTED: 25Nov64 ENCL: 02 SUB CODE: ES

NO REF SOV: 000 OTHER: 000

Card 2/4

L 52504-65

ACCESSION NR: AT5011154

ENCLOSURE: 01

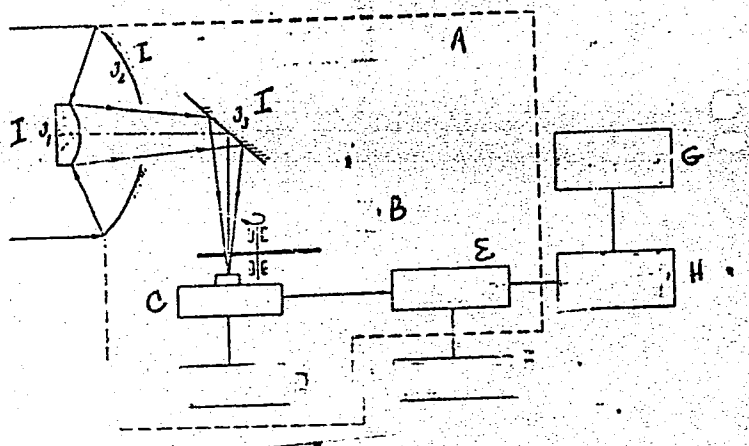

Fig. 1. Block diagram of the recorder. A. Optical head unit; B. Obturator; C. Bolometer; D. Power source (batteries); E. Amplifier; F. Power source (batteries); G. Power source (storage batteries, balloon electrical system); H. Loop oscillograph; I. Mirrors.

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L 52504-65

ENCLOSURE: 02

ACCESSION NR: AT5011154

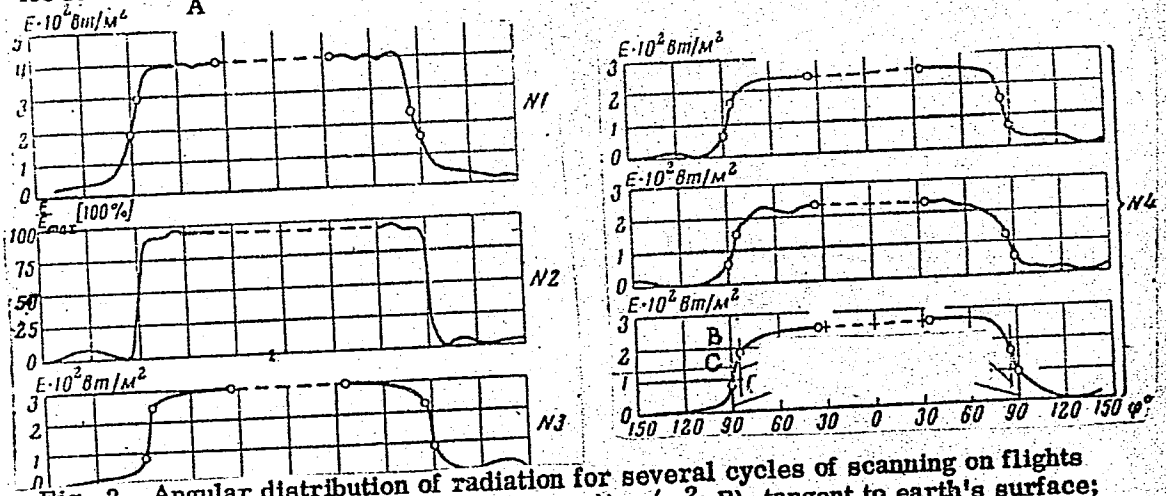

Fig. 2. Angular distribution of radiation for several cycles of scanning on flights Nos. 1-4 obtained from different heights. A) w/m^2; B) tangent to earth's surface; C) horizontal direction.

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L 45735-65 EWG(v)/EWT(l)/EEC(t)/FSS-2 Pe-5/Po-4/Pae-2 GW/GS
ACCESSION NR: AT5011155 UR/0000/64/000/000/0051/0054

AUTHOR: Liventsov, A. V.; Markov, M. N.; Merson, Ya. I.; Shamilev, M. R.

TITLE: Experimental determination of the outgoing radiation from the earth, and investigation of the thermal radiation from the earth into outer space during the time of the total solar eclipse, using high altitude geophysical rockets

SOURCE: Mezhvedomstvennoye soveshchaniye po aktinometrii i optike atmosfery. 5th, Moscow, 1963. Aktinometriya i optika atmosfery (Actinometry and atmospheric optics); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1964, 51-54

TOPIC TAGS: earth radiation, thermal radiation, geophysical rocket, high altitude rocket, solar eclipse, infrared radiation

ABSTRACT: The results reported were obtained since 1958 with geophysical rockets shot to altitudes of 100 - 450 km. The authors stress the results of one of the experiments carried out during the total solar eclipse of 15 February 1961 in the central belt of the European part of the Soviet Union. The radiation receiver was a bismuth bolometer. The null drift caused by instability of the bolometer bridge and the

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ACCESSION NR: AT5011155

dc amplifier were eliminated by using a modulation scheme. The specifications of the equipment are briefly described. The first essential result obtained during the experiments was a direct measurement of the average values of the radiation outgoing from the earth, measured from outer space. The results indicate that the radiation flux from the earth varies smoothly with angle, and does not decrease abruptly toward the earth's rim. This indicates that the high layers of the upper atmosphere have a strong influence on the angular distribution. The considerable change in the energy flux during the total phase of the eclipse also offers evidence of the appreciable contribution from the upper layers, since the thermal conditions in the lower layers and in the ground could not change noticeably during the total eclipse. The results cannot be directly compared with those by others, in view of the different experimental conditions. The data obtained make it possible to estimate the screening effect of the moon on the daytime thermal radiation of the earth's atmosphere and lead to the conclusion that although the mean theoretical values of the outgoing flux are in sufficiently good agreement with the experiment, the theoretical angular distribution needs considerable modification. "I. P. Aver'yanov, A. M. Kasatkin, and V. Ye. Shervinskiy participated in the experiment during the eclipse and in the development of the corresponding apparatus." Orig. art. has: 3 figures and 1 table. [02]

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L 45735-65
ACCESSION NR: AT5011155

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moscow (Physics Institute AN SSSR)

SUBMITTED: 25Nov64 ENCL: 00 SUB CODE: AA, NS

NR REF SOV: 000 OTHER: 000 ATD PRESS: 4001

Card BJR 3/3

L 43197-65 EWG(v)/EWT(1) Pe-5/Pae-2 GW
ACCESSION NR: AP5009646 UR/0293/65/003/002/0268/0283

35
16
B

AUTHOR: Markov, M. N.; Merson, Ya. I.; Shamilev, M. R.

TITLE: Seasonal variations in the field of thermal radiation of the earth and atmosphere in the infrared region of the spectrum (on the basis of measurements from geophysical balloons in 1962-1963)

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 2, 1965, 268-283

TOPIC TAGS: thermal radiation, atmospheric radiation, upper atmosphere, aeronomy, stratosphere, mesosphere, troposphere, geophysical balloon, infrared radiation

ABSTRACT: Investigations of the earth's infrared radiation by instruments carried aloft in geophysical balloons in 1960-1961 revealed that this method yields important data for determining the general picture of the radiation of earth and space. The purpose of this paper is to report and interpret data on the angular distribution of integral infrared radiation of the earth under summer and winter conditions. These measurements, made in 1962-1963, have yielded much important information on the troposphere, stratosphere, and mesosphere. Only limited information is given on the apparatus used since in most respects it

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L 43197-65
ACCESSION NR: AP5009646

was similar to that used previously (M. N. Markov, Ya. I. Merson, and M. R. Shamilev, Kosmich. issled., 1963, v. 1, no. 2, 235). The instruments were carried to a height of 25-29 km by a balloon of greater volume than used before. A photograph of the balloon accompanies the text; it resembles those used in the United States for high-level atmospheric research, but no details are given. There were some changes in the instruments making it possible to measure the earth's thermal radiation during the daytime despite the presence of maximum temperature gradients in the surface boundary layer of the atmosphere and at the earth's surface. Measurements were made in the central zone of the European USSR. The records were obtained during the daytime and at angles of the sun above the horizon which were approximately identical in summer and winter. In two summer flights there were 8 periods of measurements with a total duration of 90 minutes, and 30 curves were obtained of the angular distribution of terrestrial radiation. There was one successful winter flight yielding 10 curves of angular distribution. Among the conclusions drawn are that the radiation from space attains a minimum in the space-earth transition region (at angles of sight 10-20° upward from the horizontal). Close to the zenith (40—50°), the intensity attains a maximum, but at an angle 20—30° from the zenith, the intensity again decreases. This agrees with the observations of 1960-1961. The following

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L 43197-65
ACCESSION NR: AP5009646

measurements are discussed in detail (complete data are given in tables and graphs): a) intensity of thermal radiation at angles to ± π/3 from the nadir for different flights; b) radiation level when sighting horizontally and radiation of the mesosphere; c) shape of the curves of angular distribution. Evaluations reveal disagreement between experimental data and theoretical computations. However, there is good agreement with respect to the scale of thermal inhomogeneities and the absolute values of effective temperature as determined by TIROS satellites. Orig. art. has: 6 figures and 7 tables. [08]

ASSOCIATION: none

SUBMITTED: 04May64 ENCL: 00 SUB CODE: ES

NO REF SOV: 004 OTHER: 001 ATD PRESS: 3242

Card 3/3

L 2798-66 FSS-2/EWT(1)/FCC GS/GW
ACCESSION NR: AT5023569 UR/0000/65/000/000/0090/0093

AUTHOR: Markov, M. N.; Merson, Ya. I.; Shamilev, M. R.

TITLE: Investigation of the angular distribution of terrestrial and atmospheric radiation using geophysical rockets and balloons

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 90-93

TOPIC TAGS: atmospheric radiation, angular distribution, meteorologic rocket, meteorologic balloon, IR radiation

ABSTRACT: The authors report on a systematic study of infrared radiation from the earth which was begun in 1958. The angular distribution of terrestrial radiation was measured in the 0.8-40 μ spectral region using rocket equipment at altitudes of 100-500 km and geophysical balloons at altitudes up to 30 km. The viewing angle was 2π, angular resolution was $2 \cdot 10^{-3}$ rad, threshold of sensitivity—10^{-8}–10^{-9} watt. The readings were recorded by self-contained systems and by telemetry. The rockets and balloons were launched during various seasons of the year, at various times of

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day and under various geographical conditions within the boundaries of the Soviet Union. About 50 launchings in all were made. The experimental setup is shown in fig. 1 of the Enclosure. It was found that the contribution of atmospheric radiation to the heat flow emanating from the planet is considerably greater than could be accounted for by existing hypotheses (especially at great thicknesses which correspond to large zenith angles). It is therefore assumed that the effective altitude of the radiating atmosphere reaches 150 km. The high-altitude distribution of atmospheric radiation has a layered structure (which is clearly defined at altitudes above 150 km). An increase in radiation intensity is observed, chiefly in the 2.5-8 μ spectral region, at altitudes of about 280, 430 and 500 km. There are no small-scale non-uniformities on the curve for angular distribution of terrestrial radiation. Diurnal variations in the curve are also small. Seasonal changes and those due to variations in climate and geography are more pronounced. Orig. art. has: 6 figures, 1 table. [14]

ASSOCIATION: none

SUBMITTED: 02Sep65 ENCL: 01 SUB CODE: ES, SV

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4102

ENCLOSURE: 01

L 2798-66
ACCESSION NR: AT5023569

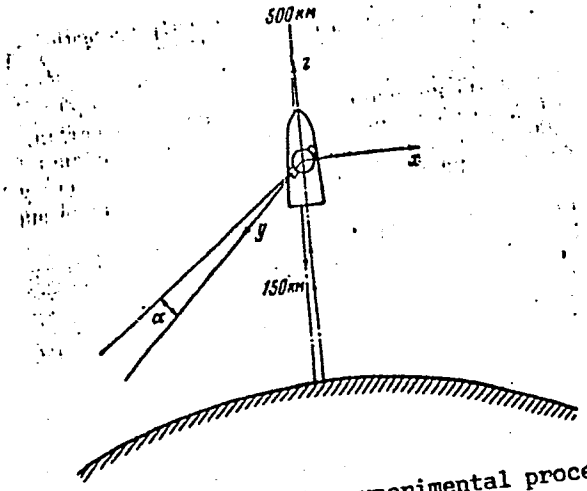

Fig. 1. Diagram of the experimental procedure

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L 2801-66 EWT(1)/FCC/EWA(h) GS/GW

ACCESSION NR: AT5023573 UR/0000/65/000/000/0112/0119

31
30
84

AUTHOR: Markov, M. N.; Merson, Ya. I.; Shamilev, M. R.

TITLE: IR-radiative layers in the upper atmosphere

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 112-119

TOPIC TAGS: IR radiation, atmospheric radiation, upper atmosphere

ABSTRACT: The authors propose a theoretical model for the IR-radiative layers in the upper atmosphere at altitudes of 280, 420 and 500 km. It is assumed that the emitting layers are ~5 km thick and that there is practically no absorption in the interlayer space. With the further assumption that radiation intensity is proportional to the length of the emitting layer (taking radiation dilution into account), theoretical curves are plotted for radiation intensity as a function of angular distribution. A comparison between experimental and theoretical curves shows satisfactory agreement at all three altitudes and at intermediate heights. The proposed model is also used for calculating isotropic radiation flux, and the number of non-

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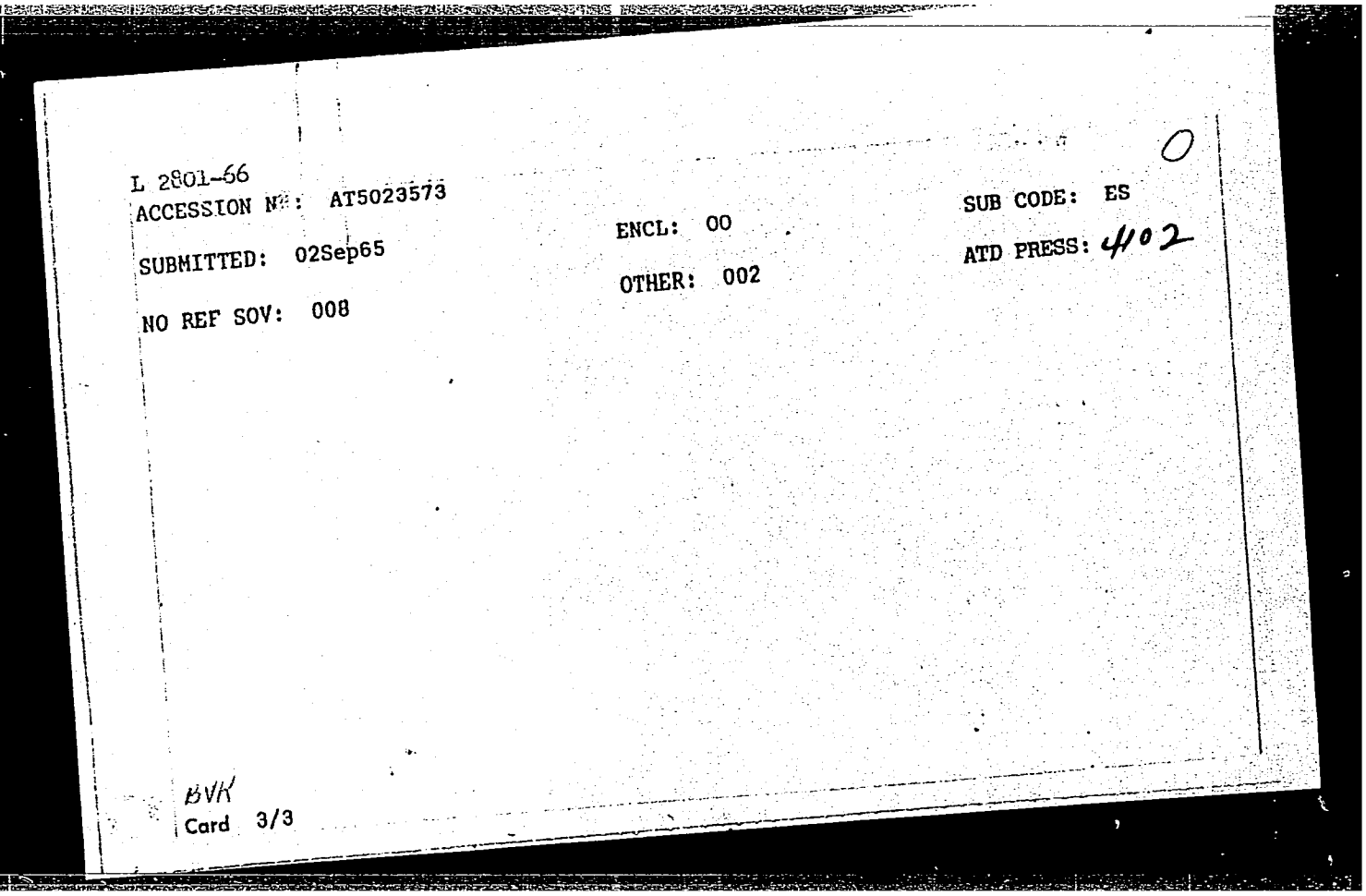
L 2801-66

ACCESSION NR: AT5023573

equilibrium radiation events in the emitting layers. The isotropic radiation flux from all layers can be no more than a few tenths of the solar constant. It is estimated that there is a single radiation event each second. The concentration of neutral NO molecules in the lower layer is calculated at 10^9 cm^{-3}, the total number of radiating particles being $\sim 10^{17}$, assuming a path about 500 km long. No assumptions are made about other neutral molecules in the upper atmosphere which might radiate in the infrared zone. Rough approximations indicate that the effective temperature for the observed radiation reaches $\sim$2000°K. It is assumed that the radiating molecules are activated by corpuscular streams from the sun. A correlation is established between infrared radiation in the upper atmosphere and flares close to the central meridian of the solar disc. The results of these investigations may be used for developing hypotheses on our planetary atmosphere, particularly with regard to determining the composition of gases in the upper atmosphere from their emission spectra, verifying the theory of the nature of the ionosphere, and determining the temperature distribution in the thermosphere from the intensity and width spectral emission lines. Orig. art. has: 4 figures. [14]

ASSOCIATION: none

Card 2/2



L 2801-66
ACCESSION NR: AT5023573
SUBMITTED: 02Sep65
NO REF SOV: 008
ENCL: 00
OTHER: 002
SUB CODE: ES
ATD PRESS: 4102
0
BVK
Card 3/3

L 45154-66 FSS-2/EWT(1) GW

ACC NR: AP6028339 SOURCE CODE: UR/0293/66/004/004/0592/0600

60
51
B

AUTHORS: Liventsov, A. V.; Markov, M. N.; Merson, Ya. I.; Shamilev, M. R.

ORG: none

TITLE: Investigation of the angular distribution of the earth's thermal radiation in outer space during the launching of a geophysical rocket on 27 August 1958

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 4, 1966, 592-600

TOPIC TAGS: thermal radiation, infrared radiation, geophysic rocket, earth atmosphere, geophysic experiment, radiation measurement

ABSTRACT: The experimental apparatus and the recorded data of a geophysical experiment conducted on a rocket, launched on 27 August 1958, are discussed. In part I of the report, the instrument is described that was used in measuring the angular distribution of the earth's IR-radiation. The various components and electrical circuitry of the radiometer are described in great detail. The two halves of the optical ends of the instrument were placed end-to-end on a small rotor to scan simultaneously in the vertical the earth's atmosphere and outer space. The instrument was calibrated using a low temperature radiation source. The rocket flew to an altitude of 450 km during which time a total of 50 scanning cycles was completed. In part II, the recorded results are given in graphical form as radiation intensity versus angular distribution and altitude curves, observed along a horizontal direction.

UDC: 551.521.32

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L 45154-66
ACC NR: AP6028339

7

The results show characteristics of nonisothermal radiation in the earth's atmosphere and several maxima in the IR-radiation at various altitudes. The following persons participated actively in the work: V. M. Yermakova, V. P. Glazunov, V. A. Zinov'yev, and S. S. Dudukin. The mechanical developments were the work of V. Ye. Shervinskiy, and the magnetic recordings were performed by A. F. Polyanskiy. The authors express their thanks to G. G. Boldyrev, A. M. Petryakhin, and K. A. Razin for their constant interest and influence on the work. Orig. art. has: 9 figures. [04]

SUB CODE: 04/ SUBM DATE: 15Mar65/ ORIG REF: 006/ ATD PRESS: 5081

Card 2/2

ACC NR: AP6011431

basis of a simplified atmosphere model, which has a) 3 layers, 5 km thick, at 280, 420 and 500 km.b) no absorbing gases between the radiating layers. With some minor additional assumptions it is then possible to compute the expected angular dependence of the radiation at various heights. It is shown that the model delivers a satisfactory correspondence between the computed and the observed results. The possible mechanisms of the radiation are discussed, with the conclusion that the NO ions and molecules have a decisive participation in the radiation process. The effective temperature, detemined on the absorption band of NO, is of the order of 2000°K. The activation source, by exclusion on the basis of energies involved, is thought to be the corpuscular solar flow having peak enegies, in the atmosphere, of thousands of ergs/sec.cm^2. The correlation of the IR radiation of the ionosphere with the flashes at the central meridian of the Sun can be considered as established. Orig. art. has 2 figures, 1 table.

SUB CODE: 04, 20/ SUBM DATE: 21Jul65/ ORIG REF: 007/ OTH REF: 002

Card 2/2

SHAMILINA, M.K. and P.P. KUZ'MIN.

"Influence of Forest on Snow Thaw," Trudy Gosudarstvennogo Gidrologicheskogo Instituta (Works of the State Hydrological Institute), No 42(96), 1954, Leningrad (responsible Editor: M.K. Shamilina; Author of Monograhp: P.P. Kuz'min, Candidate of Geographical Sciences).

ACC NR: AP6028888 SOURCE CODE: UR/0366/66/002/008/1377/1382

AUTHOR: Mamedov, Shamkhal; Shamilov, Kh. Kh.; Khydrov, D. N.

ORG: Institute of Petrochemical Processes, Academy of Sciences, AzerbSSR, Baku (Institut neftekhimicheskikh protsessov Akademii nauk AzerbSSR)

TITLE: Glycol ethers and their derivatives. CVIII. Synthesis of alkoxymethyl ethers of 1-hexyloxy-3-(diethylamino)-2-propanol

SOURCE: Zhurnal organicheskoy khimii, v. 2, no. 8, 1966, 1377-1382

TOPIC TAGS: pesticide, hexyloxydiethylaminopropanol alkoxymethyl ether, ether, chemical synthesis

ABSTRACT: In a search for new pesticides, a series of previously unreported methoxy-, propoxy-, isopropoxy-, isobutoxy-, and isoamyloxy-methyl ethers of 1-hexyloxy-3-(diethylamino)-2-propanol (I) and methoxy-, propoxy-, butoxy-, and amyloxymethyl ethers of 1-vinylmethoxy-3-(diethylamino)-2-propanol (II) were synthesized by a variant of the Williamson ether synthesis, in which α-chloro-methyl alkyl ethers are treated with I and II in the presence of NaOH. Composition and properties of the new ethers (III—XII) are given in the table. At 40—50°C in the presence of Na methoxide,

 UDC: 547.27

ACC NR: AP6028838

Compound no.	Yield (in %)	bp (p in mm)	d_4^{20}	n_D^{20}	MR_D		Found %		
					Found	Calc'd	C	H	N
I	90	128—130° (1)	0.8809	1.4412	69.28	69.49	67.46, 67.31	12.82, 12.95	6.46, 5.88
II	90	104—105 (5)	0.9155	1.4500	54.88	55.07	64.23, 64.27	11.57, 11.38	7.66, 7.64
III	54	124—126 (1)	0.8934	1.4340	80.17	80.51	65.71, 65.93	12.40, 12.17	4.90, 5.44
IV	55	141—143 (1)	0.8838	1.4368	89.79	89.81	—	—	4.67, 4.52
V	40	135—137 (1)	0.8820	1.4360	89.72	89.81	66.88, 67.36	12.57, 12.52	4.55, 4.59
VI	44	150—152 (1)	0.8800	1.4362	94.23	94.45	—	—	4.47, 4.88
VII	48	166—168 (1)	0.8814	1.4390	98.77	99.10	69.20, 68.89	12.32, 12.81	4.55, 4.55
VIII	40	161—163 (1)	0.8790	1.4376	98.77	99.10	—	—	4.70, 4.65
IX	52	100—102 (2)	0.9200	1.4396	66.11	66.09	62.21, 62.67	11.19, 11.27	6.35, 6.53
X	50	123—125 (2)	0.9076	1.4400	75.22	75.38	—	—	5.41, 5.81
XI	52	128—130 (0.5)	0.9050	1.4405	78.72	79.04	65.96, 66.31	11.66, 11.82	5.47, 5.28
XII	54	149—151 (2)	0.8993	1.4408	84.67	84.25	—	—	5.27, 4.99

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ACC NR: AP6028888

Compound no.	Yield (in %)	bp (p in mm)	d_4^{20}	n_D^{20}	MR_D Found	MR_D Calc'd	Found % C	Found % H	Found % N
XIII	60	162—163 (0.5)	0.8927	1.4438	80.30	80.62	68.00, 67.90	11.67, 11.57	10.10, 10.10
XIV	54	172—174 (1)	0.9056	1.4603	103.51	104.01	70.62, 70.55	12.32, 12.72	8.48, 8.17
XV*	87	120—122 (1)	0.9172	1.4450	72.41	72.62	62.31, 62.46	11.28, 11.16	5.32, 5.73
XVI	74	118—120 (1)	0.8595	1.4336	74.17	74.41	68.96, 68.76	13.05, 12.99	5.83, 5.78
XVII	61	126—127 (1)	0.8571	1.4341	78.69	79.06	—	—	5.79, 5.81
XVIII	75	135—136 (1)	0.8532	1.4350	83.33	83.71	70.60, 70.04	12.90, 12.99	5.35, 5.49
XIX	70	146—147 (1)	0.8517	1.4366	88.22	88.36	—	—	4.77, 4.89
XX	77	154—156 (1)	0.8502	1.4380	92.93	93.00	72.19, 72.09	13.42, 13.44	4.72, 4.75
XXI	50	170—172 (1)	0.8835	1.4623	97.15	97.60	73.35, 73.17	13.16, 12.88	8.88, 9.25
XXII	46	118—119 (2)	0.8250	1.4354	76.90	77.30	74.06, 73.76	13.67, 13.83	5.67, 5.59

* Found %: Cl 14.53, 14.29. Calculated %: Cl 14.29.

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ACC NR: AP6028888

Compound no.	Formula	Calculated %		
		C	H	N
I	$C_{13}H_{19}NO_2$	67.53	12.55	6.06
II	$C_{10}H_{21}NO_2$	64.17	11.23	7.42
III	$C_{15}H_{33}NO_3$	65.45	12.00	5.09
IV	$C_{17}H_{37}NO_3$	—	—	4.62
V	$C_{17}H_{37}NO_3$	67.33	12.21	4.62
VI	$C_{18}H_{39}NO_3$	—	—	4.41
VII	$C_{19}H_{41}NO_3$	68.68	12.39	4.23
VIII	$C_{19}H_{41}NO_3$	—	—	4.23
IX	$C_{12}H_{25}NO_3$	62.34	10.82	6.06
X	$C_{11}H_{29}NO_3$	—	—	5.67
XI	$C_{15}H_{31}NO_3$	65.93	11.36	5.12
XII	$C_{16}H_{33}NO_3$	—	—	4.89

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ACC NR: AP6028888

Compound no.	Formula	Calculated %		
		C	H	N
XIII	$C_{16}H_{32}N_2O_2$	67.60	11.27	9.85
XIV	$C_{20}H_{40}N_2O_2$	70.18	12.28	8.18
XV	$C_{13}H_{26}ClNO$	62.78	10.86	5.63
XVI	$C_{14}H_{31}NO_2$	68.57	12.66	5.71
XVII	$C_{15}H_{33}NO_2$	—	—	5.40
XVIII	$C_{16}H_{35}NO_2$	70.33	12.83	5.12
XIX	$C_{17}M_{37}NO_2$	—	—	4.88
XX	$C_{18}H_{39}NO_2$	71.76	12.95	4.65
XXI	$C_{19}H_{40}N_2O_2$	73.08	12.82	8.97
XXII	$C_{15}H_{30}NO$	74.07	13.58	5.90
XXIII	$C_{15}H_{31}NO_2$	65.93	11.35	5.12

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ACC NR: AP6028888

Compound no.	Formula	Calculated %		
		C	H	N
XXIV **	$C_{19}H_{39}NO_2S_2$	60.48	10.34	3.71
XXV	$C_{15}H_{33}NO_3$	65.46	12.00	5.09
XXVI	$C_{28}H_{60}N_2O_4$	68.85	12.30	7.73
XXVII	$C_{17}H_{37}NO_4$	63.95	11.60	4.39

[WA-50; CBE No. 12]

SUB CODE: 07,06/SUBM DATE: 21Jan65/ ORIG REF: 012/

Card 8/8

MAMEDOV, Shamkhal; SHAMILOV, Kh.Kh.; KHYDYROV, D.N.

Glycol ethers and their derivatives. Part 56: 1-Phenyl-1,3-propanediol alkoxymethyl ethers. Zhur. ob. khim. 33 no.5: 1446-1451 My '63. (MIRA 16:6)

1. Institut neftekhimicheskikh protsessov AN AzSSR.
(Propanediol) (Ethers)

S/081/62/000/004/062/087
B150/B138

AUTHORS: Khaykin, M. S., Derstuganov, G. V., Levkoyev, I. I., Kukhtin, V. A., Shamil'skaya, D. B.

TITLE: The developing properties of some 4-aminopyrazolones-(5) and their derivatives

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 456, abstract 4L421 (Tr. Vses. n.-i. kinofotoinstituta, no. 37, 1960, 17-26)

TEXT: A synthesis is made of a series of derivatives of 4-aminopyrazolones-5, and their photographic properties are investigated. Some of these compounds, e.g. containing the methyl and free or substitution carboxyl group in position 3, are active developing substances. The introduction of the amino or oxy group into position 3 reduces the developing power. The introduction of substitutes into the phenol nucleus, which is in position 1 of the pyrazolone, has less influence on photographic properties. It is indicated that the photographic properties of 4-aminopyrazolones are connected with the electronic character of the substituting groups.

[Abstracter's note: Complete translation.]

Card 1/1

KHAY[illegible], G.V.; LEVKOYEV, I.I.; KUKHTIN, V.A.; SHAMIL'SKAYA,

[illegible]ing properties of some 4-amino-5-pyrazolones and their derivatives. Trudy NIKFI no.40:5-16 '62. (MIRA 18:8)

S/058/63/000/003/040/104
A062/A101

AUTHORS: Khaykin, M. S., Derstuganov, G. V., Levkoyev, I. I., Kukhtin, V. A., Shamil'skaya, D. B.

TITLE: On the developing properties of some 4-aminopyrazolones (5) and their derivatives. Report II

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 82, abstract 3D560 ("Tr. Vses. n.-i. kinofotoin-ta", 1962, no. 46, 5 - 16)

TEXT: A synthesis was made of some 1-phenyl and 1-sulphophenyl-3-carbmethoxy- and 3-carbalcoxymethyl-4-aminopyrazolones (5). The developing properties of these compounds were investigated. It is shown that the conservation of weakly alkaline developing solutions, containing 4-aminopyrazolones, depends to a large extent on the electron character of the substitutes in the 1st and 3rd positions of these compounds. It is made clear that the introduction of electronegative substitutes into the 1st and 3rd position of 4-aminopyrazolones reduces the stability of the developing solutions of these compounds with respect to the ions of bromine. For report I see RZhFiz, 1962, 1G287.
[Abstracter's note: Complete translation]

Card 1/1

KHAYKIN, M.S.; SHAMIL'SKAYA, D.B.; FEDORINA, L.G.

Developing properties of hydroxybenzoylpyrogallol. Zhur.nauch. i prikl.fot. i kin. 8 no.5:375-376 S-O '63. (MIRA 16:9)

1. Filial Vsesoyuznogo nauchno-issledovatel'skogo kinofotoinstituta (NIKFI), Kazan'.

KHAYKI[redacted], M.S.; SHAMIL'SKAYA, D.B.; FEDORINA, L.G.

Developing properties of some esters of polyhydroxybenzols.
Zhur. nauch. i prikl. fot. i kin. 8 no.6:461-463 N-D '63.
(MIRA 17:1)

1. Filial Vsesoyuznogo nauchno-issledovatel'skogo kinofotoinstituta, Kazan'.

KHAYKIN, M.S.; SHAMIL'SKAYA, E.B.; FEDORINA, L.G.

Developing properties of the alkyl derivatives of 7,8 dihydroxybenzopyrylium chloride. Zhur. nauch. i prikl. fot. i kin. 8 no.3:209-210 My-Je '64. (MIRA 18:11)

1. Filial Vsesoyuznogo nauchno-issledovatel'skogo kinofoto-instituta Kazan'. Submitted January 7, 1964.

[illegible], K. V.; [illegible], M. Y. (Prof.)

"Serum Diagnosis of Infectious Equine Encephalomyelitis," Veterinariya, Vol 28, No 5, 1951, pp 18-21.

Ukrainian Inst. of Experimental Vet. Med; Cand. Vet. Sci.

Translation: M-22069, 27 Mar 52

ACC NR: AP6036947 SOURCE CODE: UR/0233/66/000/003/0068/0070

AUTHORS: Ismailzade, I. G.; Azizov, T. S.; Nesterenko, V. I.; Shamilzade, Z. M.

ORG: none

TITLE: Investigation of the influence of accelerated electrons on the structure of polycrystalline barium titanate

SOURCE: AN AzerbSSR. Seriya fiziko-tekhnicheskikh i matematicheskikh nauk, no. 3, 1966, 68-70

TOPIC TAGS: irradiation effect, electron beam, polycrystal, diffractometer, barium titanate/ URS-50 IM diffractometer

ABSTRACT: The effect of accelerated electrons on the structure of barium titanate was investigated. A linear electron accelerator was used as the electron source with a pulse rate of 400 sec^{-1} and a beam width of 10 mm. The specimens were 3 mm thick, 10 mm in diameter disks of $BaTiO_3$ annealed at 900C for two hours. The structure was analyzed by means of an URS-50 IM x-ray diffractometer. The analysis consisted of determining the position and intensity of the maxima for 002 and 200. The results show that the magnitude of spontaneous deformation of the lattice c/a increases. After irradiation, the disk was reheated for 20 minutes at 350C. This caused a reduction in the elementary cells of the specimen. Orig. art. has: 1 figure and 1 table.

Card 1/1 SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 006

DOROSINSKIY, L.M.; LAZAREVA, N.M.; SHAMIN, A.A.; SHEKHONINA, Ye.N.

Interrelationships of the lupine plant with active and inactive nodule bacteria. Trudy Vses. inst. sel'khoz. mikrobiol. 16:94-104 '60. (MIRA 13:9)

(Lupine) (Micro-organisms, Nitrogen-fixing)

DOROSINSKIY, L.M.; LAZAREVA, N.M.; SHAKIN, A.A.

Role of nodule bacteria in the nitrogen nutrition of legumes.
Agrobiologiia no.4:594-602 Jl-Ag '60. (MIRA 13:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennoy mikrobiologii, Leningrad.
(Legumes) (Micro-organisms, Nitrogen-fixing)

SHAMIN, A.A., gornyy inzh.; BELEN'KIY, A.M., gornyy inzh.; GALKIN, A.V., gornyy inzh.

Pillar method of mining flat seams developed without brushing the rock walls. Ugol' Ukr. 5 no.3:20-21 Mr '61. (MIRA 14:3)
(Donets Basin--Coal mines and mining)

SHAMIN, A.N.; BYKOV, G.V.

Letters of A.IA. Danilevskii to A.M. Butlerov (1869-1871).
Trudy Inst.ist.est.i tekh. 39:288-303 '62. (MIRA 16:2)
(Danilevskii, Aleksandr IAkovlevich, 1838-1923)

DONSKOV, Vasiliy Yefimovich, prof.; ZUYEVA, Raisa Vasil'yevna, kand. ekon. nauk; KRUZHKOVA, Raisa Vasil'yevna, kand. ekon. nauk; MESHKOV, Yuriy Konstantinovich, kand. ekon. nauk; PONOMAREVA, Irina Andreyevna, kand. ekon.nauk; KHINKIS, Lev Akimovich, st. prepodavatel'; SHAMIN, Andrey Nikolayevich, st. prepodavatel'; KAMENITSER, S.Ye., doktor ekon. nauk, prof., retsenzent; SHVARTS, V.M., inzh.-ekon., retsenzent; FUKS, V.K., red.; PECHENKINA, O.P., tekhn. red.

[Production organization and planning in food industry enterprises] Organizatsiia i planirovanie proizvodstva na predpriiatiiakh pishchevoi promyshlennosti. [By] V.E.Donskov i dr. Moskva, Pishchepromizdat, 1963. 454 p. (MIRA 17:2)

DAVIDOVICH, N.I., inzh.; SHAMIN, A.V., inzh.

Removal of peat ash from flue gases. Energetik 11 no.4:15-17 Ap '63. (MIRA 16:3)
(Gas--Purification)
(Boilers)

SHAMIN, I. (g.Bryansk)

Why is there a lack of felt boots? Prom.koop. 14 no.7:31 Jl '60. (MIRA 13:8)
(Bryansk Province--Boots and shoes, Felt)

25(1), 28(2) SOV/115-59-9-31/37

AUTHOR: Shamin, I.D.

TITLE: The Supply of Measuring and Testing Devices Must Be Put in Order

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 9, p 56 (USSR)

ABSTRACT: The author complains about the inadequate supply of devices and materials for checking measuring instruments. During the past years, many enterprises received the authorization to perform themselves the prescribed tests of measuring instruments. Existing instruction prescribe devices and materials for these tests, but a centralized production of these materials has not yet been started. According to Instructions 106-56, 200 mm long, class I reference glass dials and special templates are required for checking universal microscopes. These devices are manufactured at Leningrad, but they are not available at plant or base laboratories. Reference dials used for testing microscopes are manufactured in small amounts in Kiyev and Balashikha, but they are rarely

Card 1/2

available. Some devices for testing measuring instruments are manufactured at the plants where the instruments are operated (special templates, etc). These devices are tested by those instruments, which are actually to be tested by the former. Some universal measuring instruments have hard-alloy tips, but it is almost impossible to procure the diamond powder required for finishing their surfaces. It is also difficult to obtain certain micro-abrasives for finishing gage blocks. The abrasives must be manufactured at the laboratories. It is difficult to receive spare parts for optical and mechanical measuring instruments. These problems should be solved by the responsible ministries, departments, sovnarkhozes and the instrument building plants. There is 1 Soviet reference.

SHAMIN, I.V., dotsent, kand.tekhn.nauk

Distribution and size of machinery industry enterprises. Trudy BITM no.21:137-143 '64.

Industrial enterprises and efficiency of their operations. Ibid.:145-149 (MIRA 18:8)

[illegible], [illegible], [illegible] M. A. Shch[illegible].

Elektrokhimicheskaia zashchita ot korrozii okhlazhdayushchikh sistem iz alyuminiyevykh splavov. Moskva, 1952. 15 p., illus., diagrs. (TsAGI, Trudy, no. 136)

Summary in English.

Title tr.: Electrochemical protection of aluminum alloy cooling systems against corrosion.

[illegible]AP11.'65 no 136

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.